

# OLEFIN POLYMERIZATION CATALYSTS, THEIR PRODUCTION AND USE

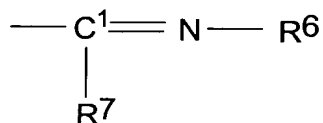
## ABSTRACT

This invention relates to a catalyst system comprising an activator and one or more heteroatom substituted phenoxide group 3 to 10 transition metal or lanthanide metal compounds wherein the metal is bound to the oxygen of the phenoxide group and provided that:

a) if more than one heteroatom substituted phenoxide is present it is not bridged to the other heteroatom substituted phenoxide,

b) if the metal is a group 4 metal then the carbon adjacent to the carbon bound to the oxygen of the phenoxide may not be bound to an aldehyde or an ester,

c) the carbon ortho to the carbon bound to the oxygen of the phenoxide may not be bound to the C<sup>1</sup> carbon in a group represented by the formula:



wherein R<sup>6</sup> and R<sup>7</sup> are independently hydrogen, halogen, a hydrocarbon group, a heterocyclic compound residue, an oxygen containing group, a nitrogen containing group, a boron containing group, an sulfur containing group, a phosphorus containing group, a silicon containing group, a germanium containing group, or a tin containing group, and R<sup>1</sup> and R<sup>2</sup> may be bonded to each other to form a ring.

The activator may be an aluminum alkyl, an alumoxane, a modified alumoxane, a non-coordinating anion, a borane, a borate or a mixture thereof.